

F2 MANUAL TRANSMISSION/MANUAL TRANSAXLE

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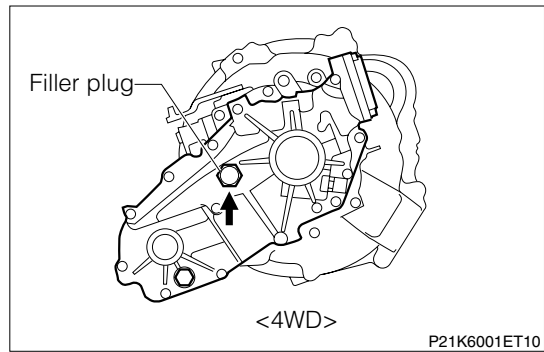
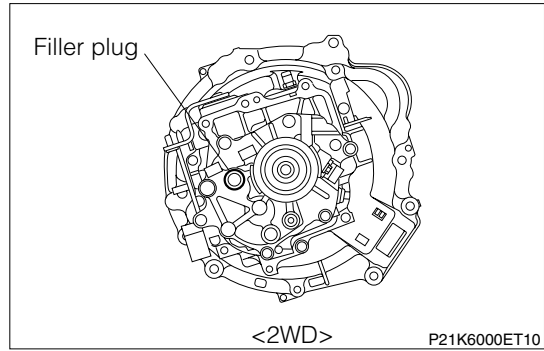
1 MANUAL TRANSMISSION

1-1 BASIC CHECK AND ADJUSTMENT

1-1-1 TRANSMISSION OIL CHECK

(1) Oil level check

1. With the vehicle in a horizontal position, remove the filler plug.



2. Check the oil level with a finger, wire, etc.

SPECIFIED VALUE: From lower edge of filler plug hole
0 to 5mm

3. If the oil is not filled to the specified level, set an oil tray under the filler plug and slowly fill gear oil.

CAUTION

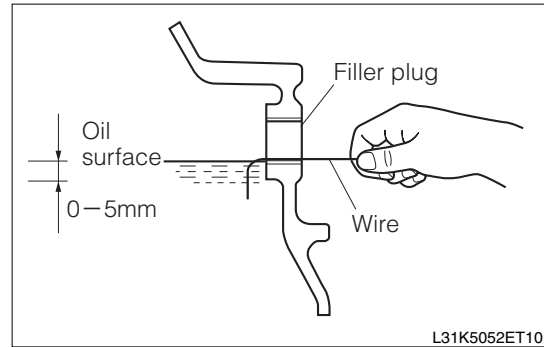
- If oil is filled quickly, the oil may overflow before it reaches to the specific level. Fill oil slowly and be sure if oil is completely filled.

4. After you confirm if the gear oil is filled to the specified level by following Step 2, tighten the filler plug to the specified torque.

CAUTION

- If the oil level is low, check for oil leakage.
Never reuse the gasket.

TIGHTENING TORQUE: $39.2 \pm 9.8 \text{ N} \cdot \text{m}$
{ $400 \pm 99 \text{ kgf} \cdot \text{cm}$ }



(2) Oil leakage check

1. Visually check if there is no oil leakage from the oil seal section, plug section, case mating surface, etc.

2 TRANSMISSION GEAR OIL

2-1 REPLACEMENT

2-1-1 ARTICLES TO BE PREPARED

Lubricants, bonds and others

Transmission gear oil SAE75W-90 or SAE75W-85 or SAE75W-80 (API Classification GL3 or GL4), Wire

2-1-2 REPLACING PROCEDURE

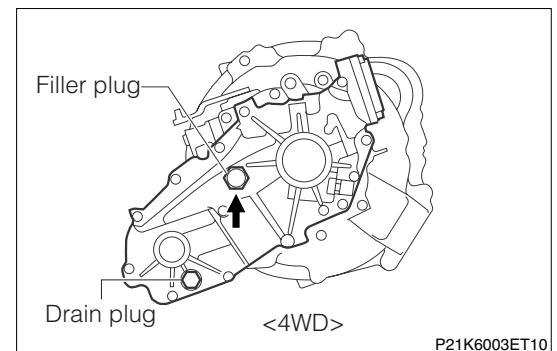
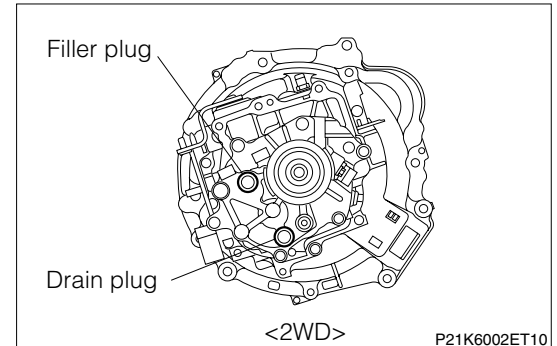
(1) Removal

1. Place an oil tray under the drain plug.
2. Remove the drain plug. Then, remove the filler plug.
3. Confirm that oil is completely drained from the manual transmission.
4. Tighten the drain plug to the specified torque.

CAUTION

- Never reuse gasket of the drain plug.

TIGHTENING TORQUE: $39.2 \pm 9.8 \text{ N} \cdot \text{m}$
 $\{400 \pm 99 \text{ kgf} \cdot \text{cm}\}$



(2) Filling

1. Place the vehicle horizontally.
2. Remove the filler plug.
3. Push the gear oil filling nozzle into the filler plug hole. Then, slowly fill gear oil.

CAUTION

- If oil is filled quickly, the oil may overflow before it reaches to the specific level. Fill oil slowly and be sure if oil is completely filled.

LUBRICANT: Transmission gear oil SAE75W-90 or SAE75W-85 or SAE75W-80 (API Classification GL3 or GL4)

NOTE

- 2WD approximately 1.2 ℓ
- 4WD approximately 2.21 ℓ

4. Leave for about five minutes after the oil no longer overflows from the filler plug at Step 3.

F2-3

5. Check the oil level with your finger or by using a wire or the like.

CAUTION

- It will take some time for oil to circulate inside the transmission. Therefore, be sure to wait for a while before confirming the oil level.

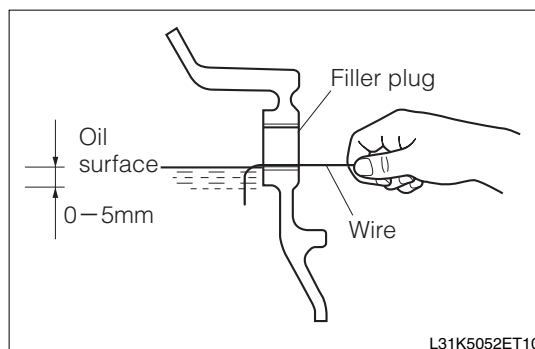
SPECIFIED VALUE: From lower edge of filler plug hole
0—5 mm

6. If the oil is not filled to the specified level, fill gear oil again by following Step 3.
7. Ensure that the gear oil is reached to the specified level by following the procedure in Step 5.
8. Tighten the filler plug to the specified torque.

CAUTION

- Never reuse gasket of the filler plug.

TIGHTENING TORQUE: $39.2 \pm 9.8 \text{ N} \cdot \text{m}$
{ $400 \pm 99 \text{ kgf} \cdot \text{cm}$ }




3 MANUAL TRANSMISSION

3-1 REMOVAL AND INSTALLATION

3-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09090-04020-000 (09090-04010-000)	Device, engine sling

Tool

High transmission jack

Lubricant, adhesive, others

Transmission gear oil SAE75W-90 or SAE75W-85 or SAE75W-80 (API Classification GL3 or GL4), Rope

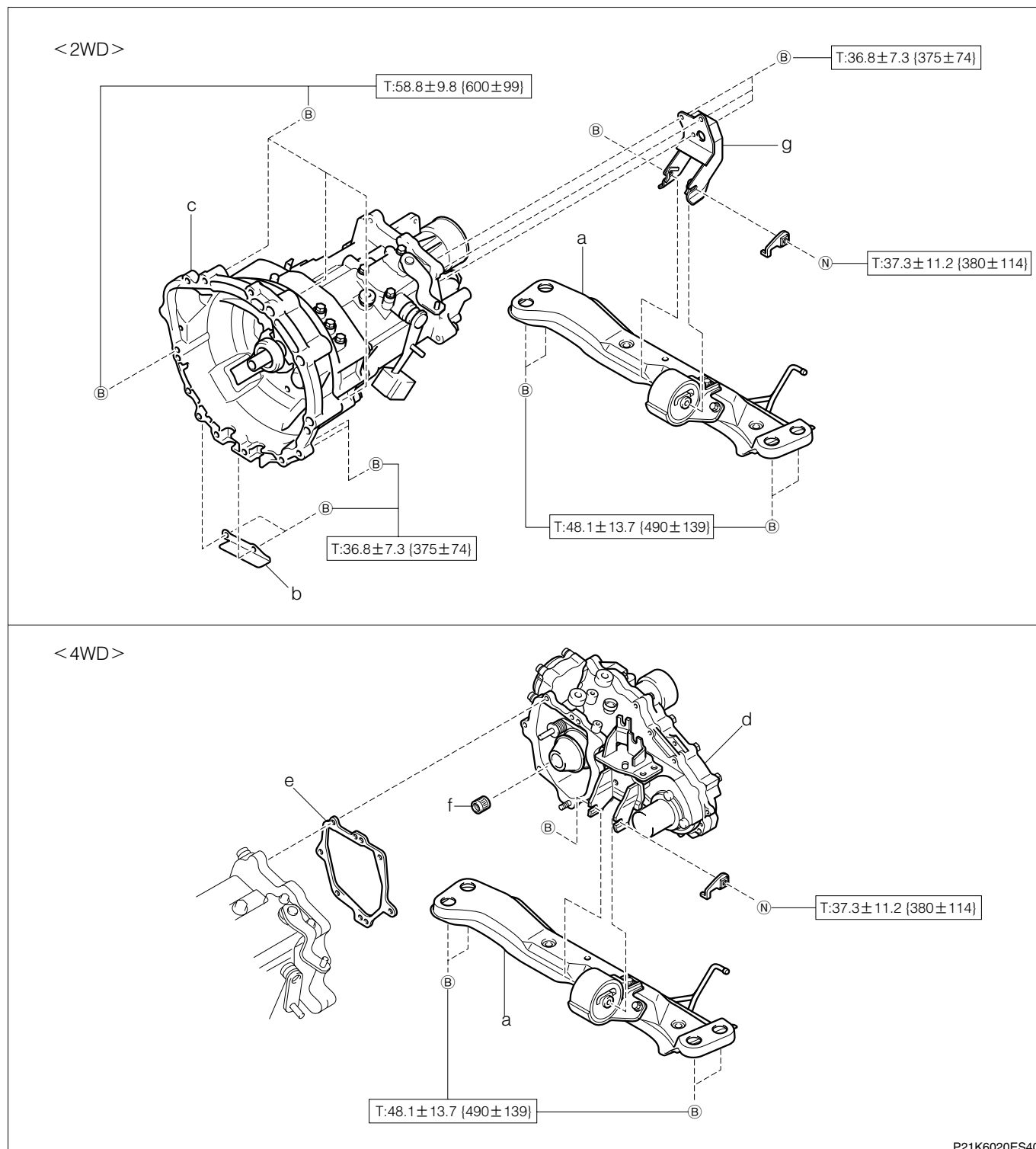
3-1-2 OPERATION BEFORE REMOVAL

1. Disconnect the negative terminal of the battery.
2. Drain the transmission oil.
Refer to Page F2-2.
3. Remove the propeller shaft Ay w/center bearing.
Refer to Page D2-17.
4. Remove the engine under cover.
Refer to Page I2-11.
5. Remove the clutch release cylinder Ay.
Refer to Page F1-11.
6. Disconnect the transmission control cable Ay on the transmission side.
Refer to Page F2-18.
7. Disconnect the connectors.
8. Remove the starter Ay
Refer to Page B11-2.

F2-5

3-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



Unit: N·m[kgf·cm]

※: Non-reusable parts

(2) Removal and installation procedures

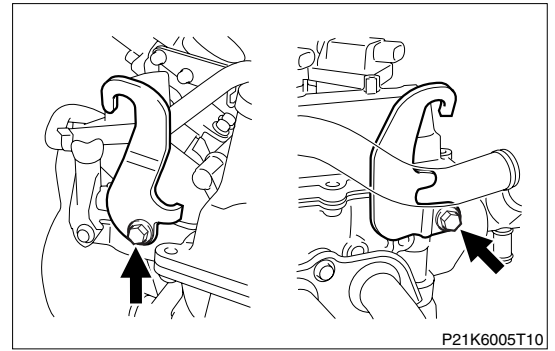
- | | | | | | | | |
|-----|---|---|--------------------------------|-----|---|---|------------------------------------|
| ▼ | 1 | a | Member S/A, engine support, RR | ▼ ▲ | 6 | f | Bearing, needle (4WD) |
| | 2 | b | Cover, clutch housing under | | 7 | g | Bracket, engine mounting, RR (2WD) |
| ▼ ▲ | 3 | c | Transmission Ay | | | | |
| ▼ ▲ | 4 | d | Transfer Ay (4WD) | | | | |
| ▼ ▲ | 5 | e | Gasket, transfer (4WD) | | | | |

3-1-4 POINTS OF REMOVAL

(1) Member S/A, engine support, RR

1. Install engine hanger No. 1 and No. 2 with the bolts to the locations shown in the illustration.
2. With the chain block, etc. and the engine slinger device installed to the engine hanger, hold the engine Ay.

SST: 09090-04020-000

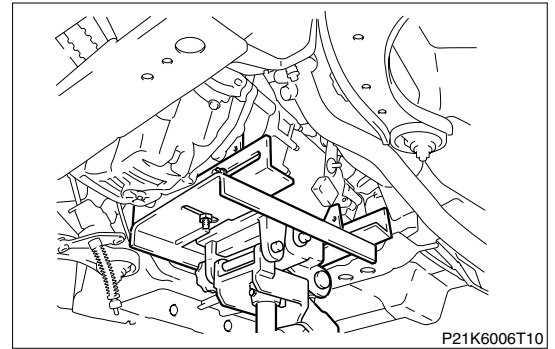


3. Support the manual transmission Ay using a high mission jack.

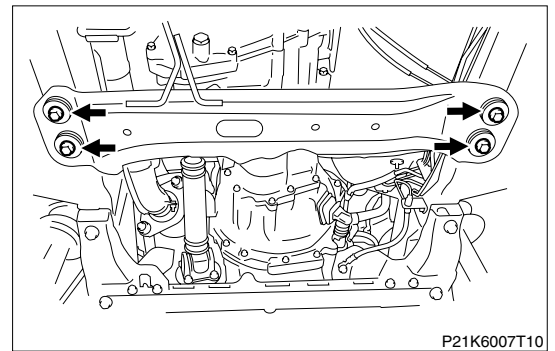
TOOL: High transmission jack

CAUTION

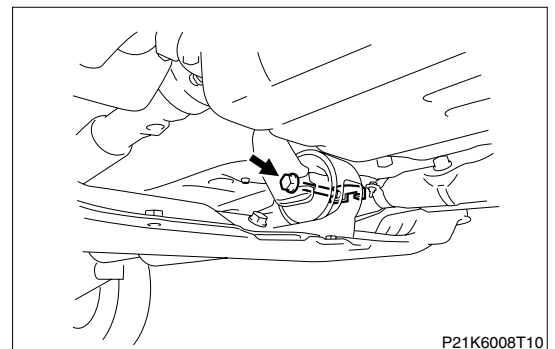
- When using the high mission jack, be sure to interpose a cloth between the jack and the parts so as not to scratch the parts.
- Care must be exercised to prevent the manual transmission Ay from lowering while it is being supported by the high mission jack.



4. Remove the attaching bolts of the engine support member S/A RR.

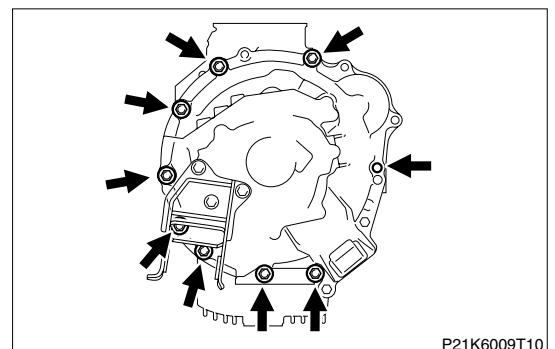


5. Remove the nuts and bolts, and then remove the engine support member S/A RR.



(2) Transmission Ay, manual

1. Slowly lower the chain block and the high mission jack, and tilt the transmission to a point where all of its attaching bolts can be seen.
2. Remove the bolts which connect the engine Ay and the transmission Ay, and remove the clutch housing under cover.



(3) Transfer Ay, Gasket, transfer, Bearing, needle

1. Operate the high mission jack, and remove the transmission Ay from the vehicle, while tilting it towards the back of the vehicle.

CAUTION

- Ensure that the transmission Ay does not fall off the high mission jack.

3-1-5 POINTS OF INSTALLATION

(1) Transfer Ay, Gasket, transfer, Bearing, needle

Refer to Page D1-6.

(2) Transmission Ay, manual

1. After cleaning the seal bolt holes of the engine block, install the transmission Ay.

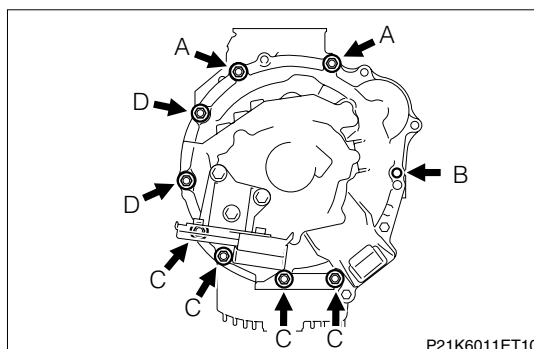
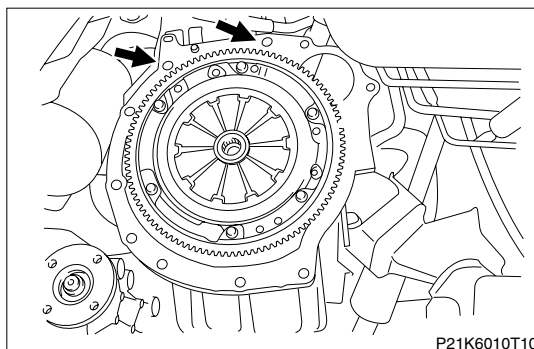
CAUTION

- Never reuse seal bolt.
2. Check that the 2 knock pins are attached to the engine Ay side.
 3. Using the high mission jack, press-fit the installation surfaces of the engine and the transmission Ay. (The clearance should be 2mm or less.)
 4. Tighten Bolts A, B and D.

TIGHTENING TORQUE: $58.8 \pm 9.8 \text{ N} \cdot \text{m}$
 $\{600 \pm 99 \text{ kgf} \cdot \text{cm}\}$ Bolts A, B,
 and D

5. Tighten Bolt C.

TIGHTENING TORQUE: $36.8 \pm 7.3 \text{ N} \cdot \text{m}$ $\{375 \pm 74\}$ Bolt
 C



3-1-6 OPERATION AFTER INSTALLATION

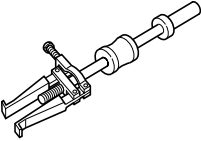
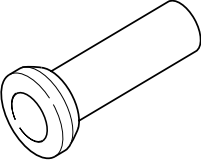
1. Attach the starter Ay.
Refer to Page B11-2.
2. Connect the connectors.
3. Connect the transmission control cable Ay.
Refer to Page F2-18.
4. Attach the clutch release cylinder Ay.
Refer to Page F1-11.
5. Attach the engine under cover.
Refer to Page I1-12.
6. Remove the propeller shaft Ay w/center bearing.
Refer to Page D2-17.
7. Fill the manual transmission Ay oil.
Refer to Page F2-2.
8. Lift down the vehicle.
9. Connect the negative terminal of the battery.
10. Check that there is no oil leakage.

4 EXTENSION HOUSING OIL SEAL(2WD)

4-1 REMOVAL AND INSTALLATION

4-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09308-00010-000	Puller, oil seal
	09309-87201-000	Replacer, transmission bearing

Grease, bond, etc.

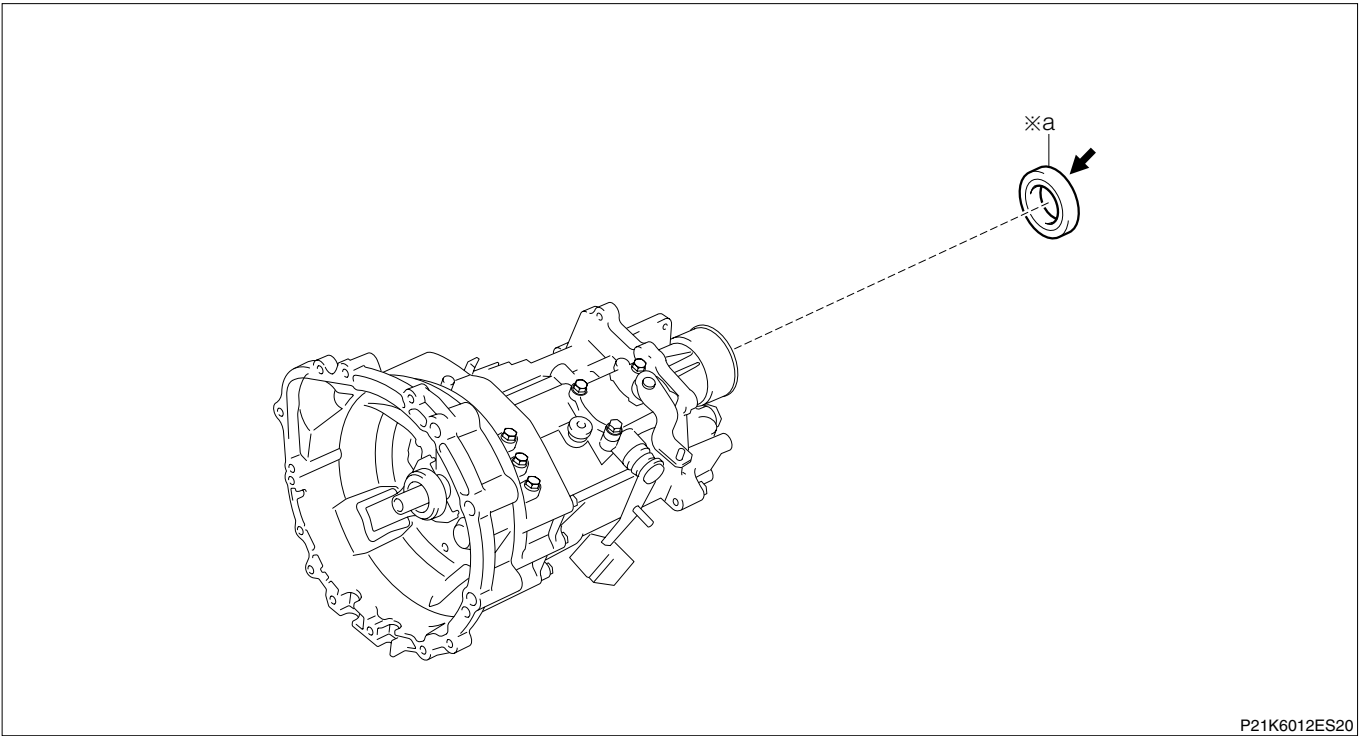
Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4),MP grease

4-1-2 OPERATION BEFORE REMOVAL

- 1. Remove the propeller shaft Ay w/center bearing.
Refer to Page D2-17.

4-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



※: Non-reusable parts

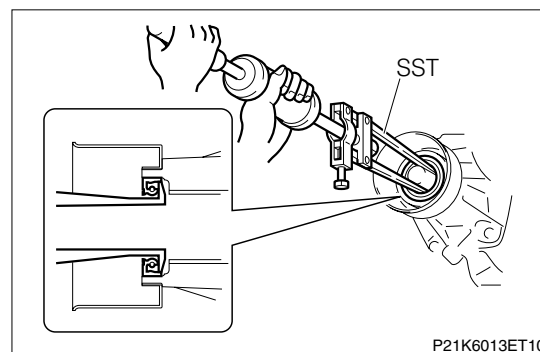
➡: MP grease

(2) Removal and installation procedures

- ▼ ▲ 1 a Seal, type T oil

4-1-4 POINTS OF REMOVAL**(1) Seal, type T oil**

1. Remove the seal using the SST.
SST: 09308-00010-000

**4-1-5 POINTS OF INSTALLATION****(1) Seal, type T oil**

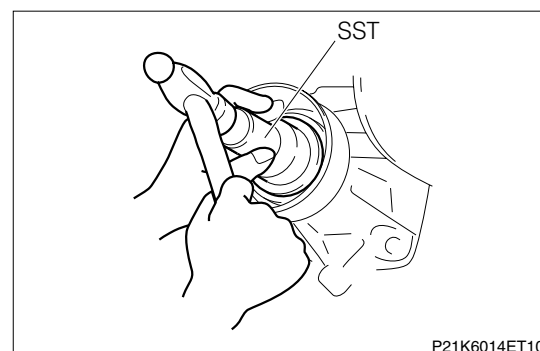
1. Drive the seal in place using the SST.

CAUTION

- Apply MP grease to the entire periphery of the seal lip area.

SST: 09309-87201-000

LUBRICANT: MP grease

**4-1-6 OPERATION AFTER INSTALLATION**

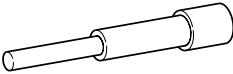
1. Attach the propeller shaft Ay w/center bearing.
Refer to Page D2-17.
2. Check the level of the transmission oil.
Refer to Page F2-2.
3. Check that there is no oil leakage.

5 SPEEDOMETER DRIVEN GEAR(ABS EQUIPPED VEHICLE)

5-1 REMOVAL AND INSTALLATION

5-1-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09201-01080-000 (09201-60011-000)	Remover & replacer, valve guide bush

Grease, bond, etc.

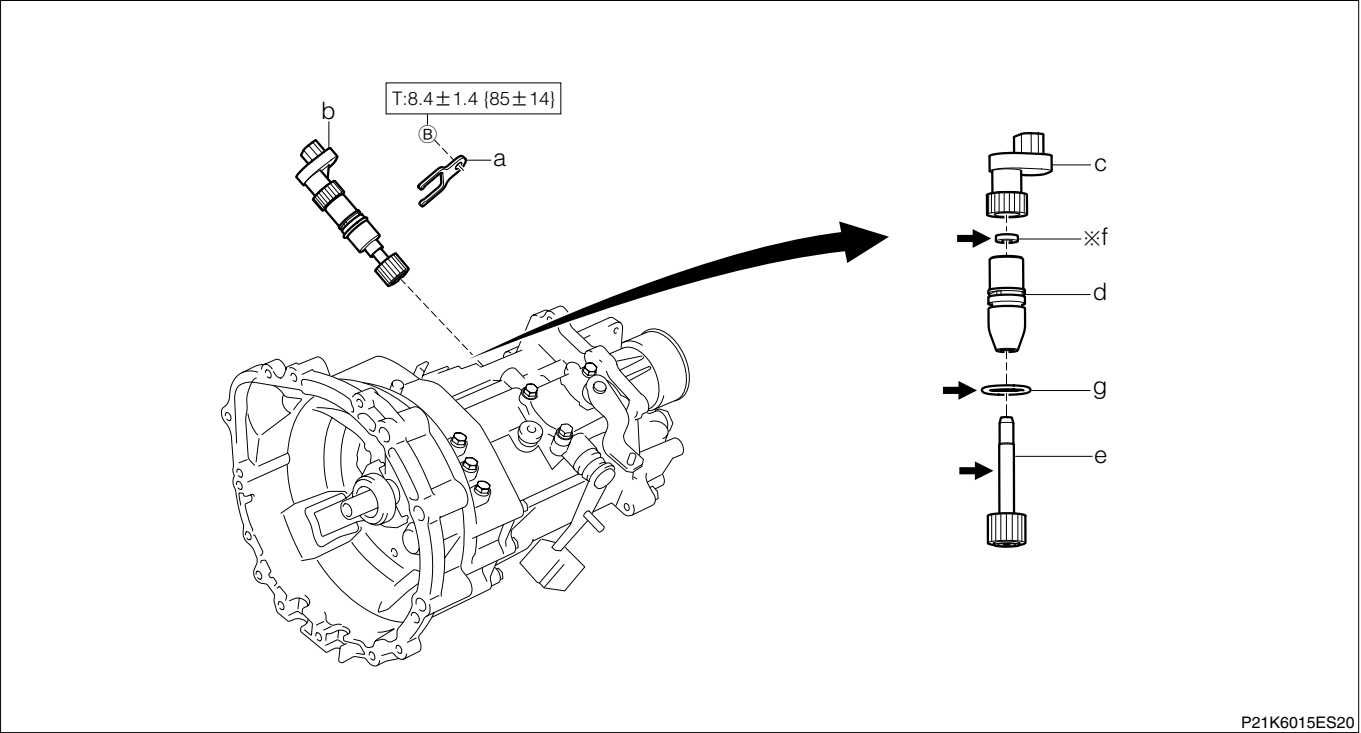
MP grease,Transmission gear oil SAE75W－90 or SAE75W－85 or SAE75W－80 (API Classification GL3 or GL4)

5-1-2 OPERATION BEFORE REMOVAL

- 1. Disconnect the negative terminal of the battery.
- 2. Disconnect the connector from the speedometer sensor.

5-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



P21K6015ES20

Unit: N·m{kgf·cm}

※: Non-reusable parts

➡: Transmission gear oil

(2) Removal and installation procedures

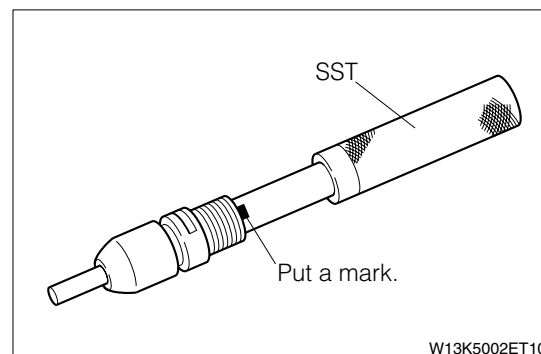
- 1 a Plate, speedometer sleeve lock
- 2 b Speed sensor set
- 3 c Sensor, speedometer
- 4 d Sleeve, speedometer shaft
- ▲ 5 e Gear S/A, speedometer driven
- ▼ ▲ 6 f Seal, type K oil
- ▲ 7 g Ring, O

5-1-4 POINTS OF REMOVAL

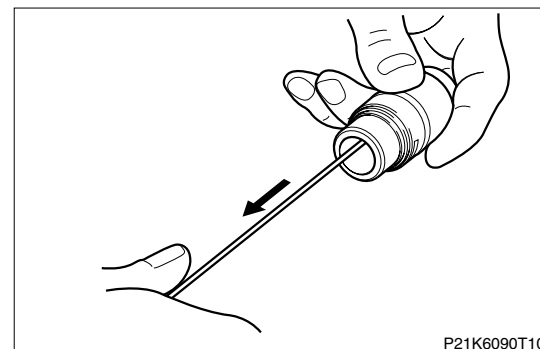
(1) Seal, type K oil

1. Before removing the seal, insert the SST into the speedometer shaft sleeve and leave a reference mark for reinstallation.

SST: 09201-01080-000

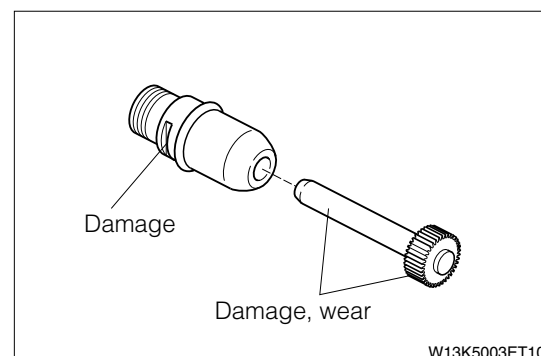


2. Remove the seal from the speedometer shaft sleeve, using a piece of wire, etc.



5-1-5 INSPECTION

1. Check the following items. Replace any faulty part.
 - (1) Check the shaft section and gear section of the speedometer driven gear S/A for wear and damage.
 - (2) Check the speedometer shaft sleeve for damage.



5-1-6 POINTS OF INSTALLATION

(1) Ring, O

1. Apply the transmission gear oil to the ring. Then, install the ring to the speedometer shaft sleeve.

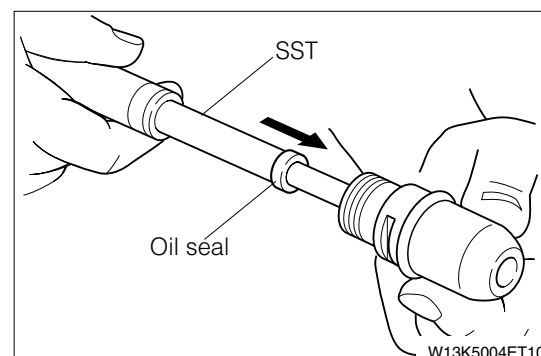
LUBRICANT: Transmission gear oil SAE75W-90 or SAE75W-85 or SAE75W-80 (API Classification GL3 or GL4)

(2) Seal, type K oil

1. Install the seal.
 - (1) Apply MP grease to the entire periphery of the seal lip area.
 - (2) Referring to the mark left at the time of removal, install the seal to the speedometer shaft sleeve using the SST.

LUBRICANT: MP grease

SST: 09201-01080-000



F2-13

(3) Gear S/A, speedometer driven

1. Apply the transmission gear oil to the entire periphery of the shaft of the gear S/A. Then, install it to the speedometer shaft sleeve.

LUBRICANT: Transmission gear oil SAE75W—90 or SAE75W—85 or SAE75W—80 (API Classification GL3 or GL4)

5-1-7 OPERATION AFTER INSTALLATION

1. Connect the connector to the speedometer sensor.
2. Connect the negative terminal of the battery.

6 BACK UP LAMP SWITCH

6-1 REMOVAL AND INSTALLATION

6-1-1 ARTICLES TO BE PREPARED

Instrument

Electrical tester

Lubricants, bonds and others

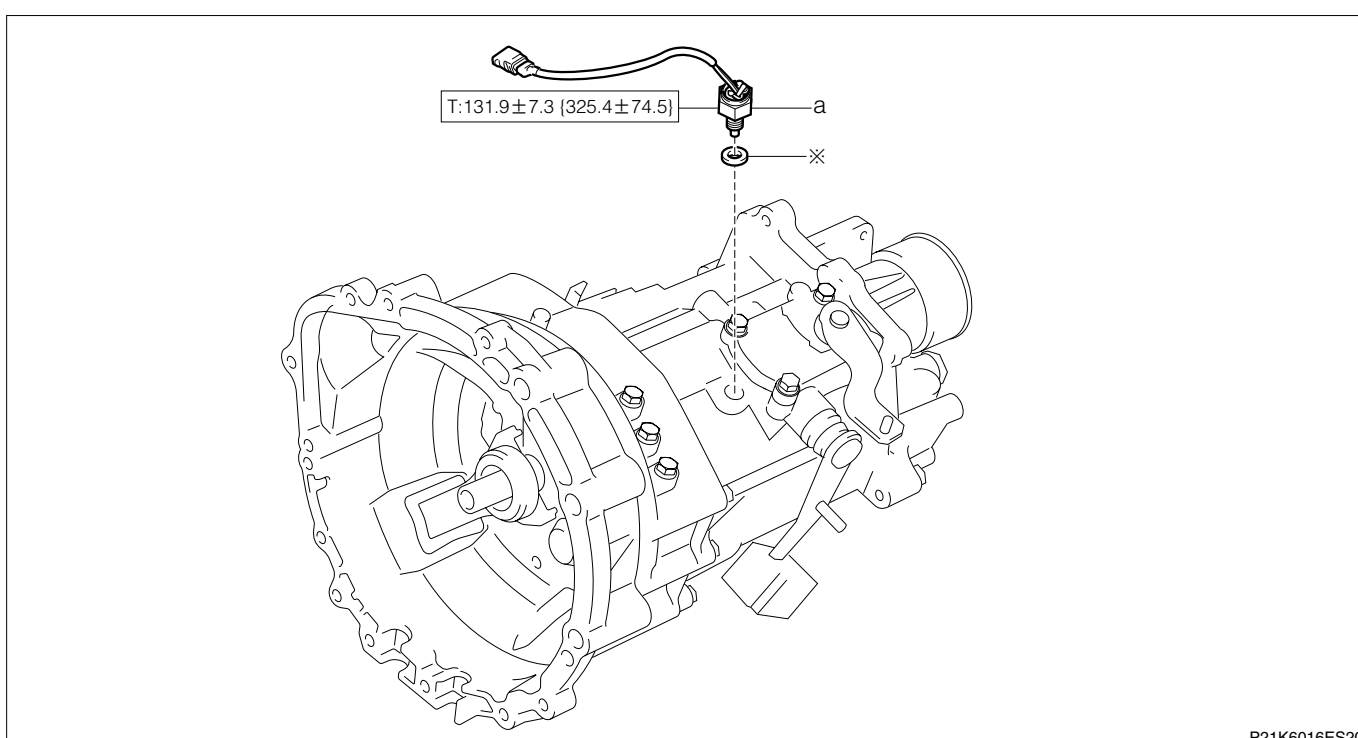
Transmission gear oil SAE75W-90 or SAE75W-85 or SAE75W-80 (API Classification GL3 or GL4)

6-1-2 OPERATION BEFORE REMOVAL

1. Drain the oil from the manual transmission Ay.
Refer to Page F2-2.

6-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



P21K6016ES20

Unit: N·m{kgf·cm}

※: Non-reusable parts

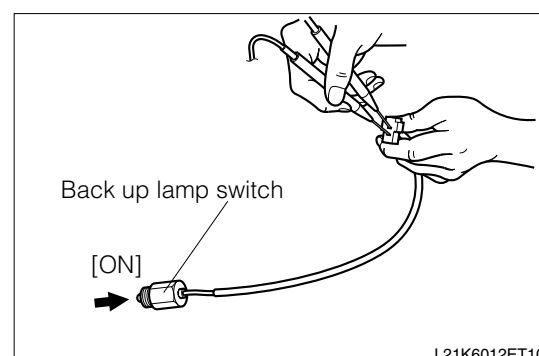
(2) Removal and installation procedures

- 1 a Switch Ay, back up lamp

6-1-4 INSPECTION

Check the following items. Replace any faulty part.

1. Ensure that continuity exists when the switch of the backup lamp switch Ay is pressed (ON). Conversely, ensure that no continuity exists when the switch is not pressed (OFF).



L21K6012ET10

6-1-5 OPERATION AFTER INSTALLATION

1. Fill manual transmission oil.

Refer to Page F2-2.

7 SHIFT LEVER

7-1 REMOVAL AND INSTALLATION

7-1-1 ARTICLES TO BE PREPARED

Lubricants, bonds and others

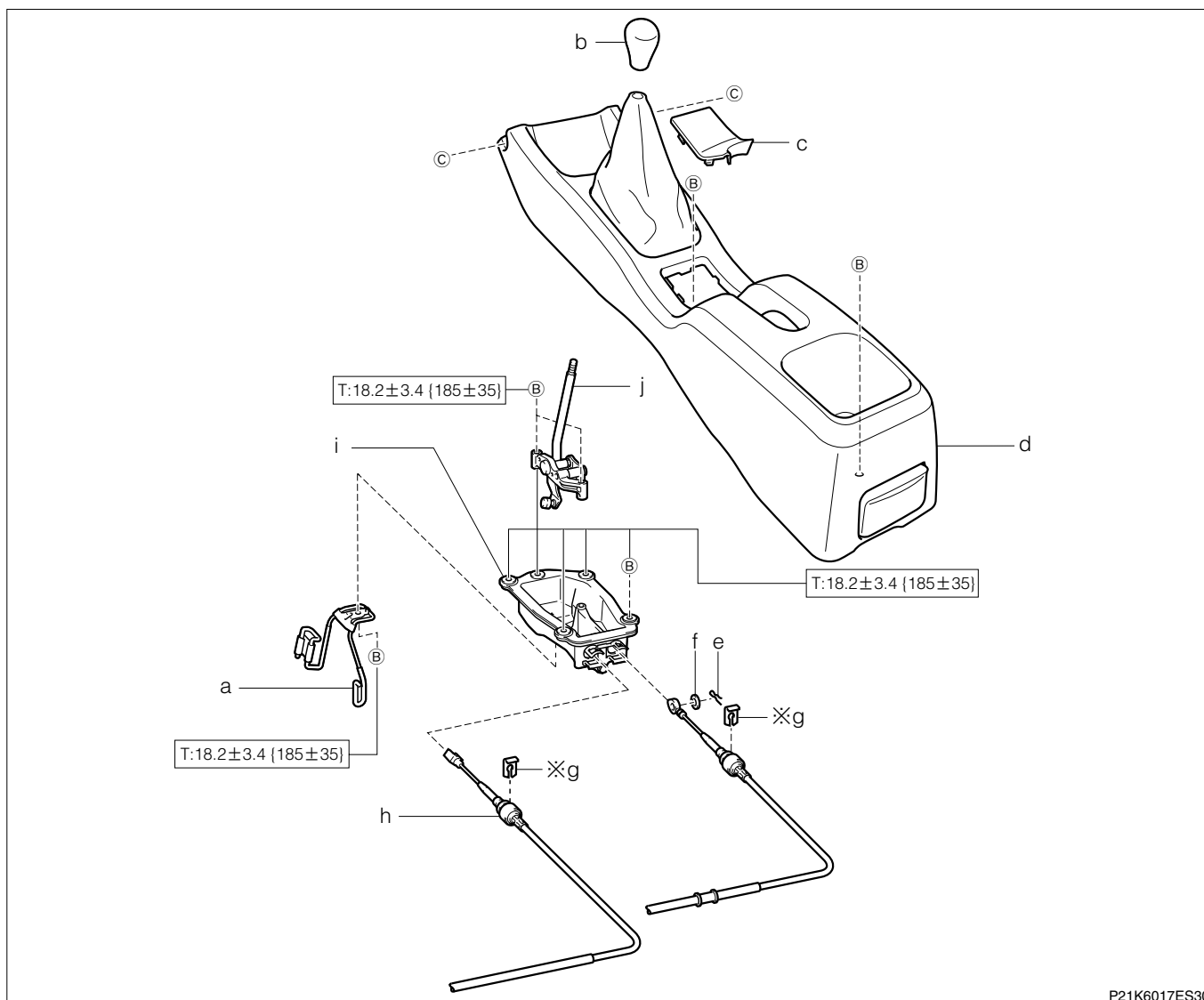
MP grease

7-1-2 OPERATION BEFORE REMOVAL

1. Lift up the vehicle.

7-1-3 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



P21K6017ES30

Unit: N·m{kgf·cm}

※: Non-reusable parts

➡:MP grease

(2) Removal and installation procedures

- | | |
|---------------------------------------|------------------------------------|
| 1 a Clamp, transmission control cable | 6 f Washer, plate |
| ▲ 2 b Knob S/A, shift lever | 7 g Clip |
| 3 c Cover, console box hole | 8 h Cable Ay, transmission control |
| 4 d Box Ay, console RR UPR | 9 i Shift Ay, transmission floor |
| 5 e Clip | 10 j Lever, shift |

F2-17

7-1-4 POINTS OF INSTALLATION

(1) Knob S/A, shift lever

1. Install the knob.
2. Screw in the knob until it comes in contact lightly with the shift lever. Retighten the knob a further 1.5 turns. Then, adjust the direction of the shift pattern by turning it in the retightening direction.

7-1-5 OPERATION AFTER INSTALLATION

1. Lift down the vehicle.

8 SHIFT CABLE AY AND SELECT CABLE AY

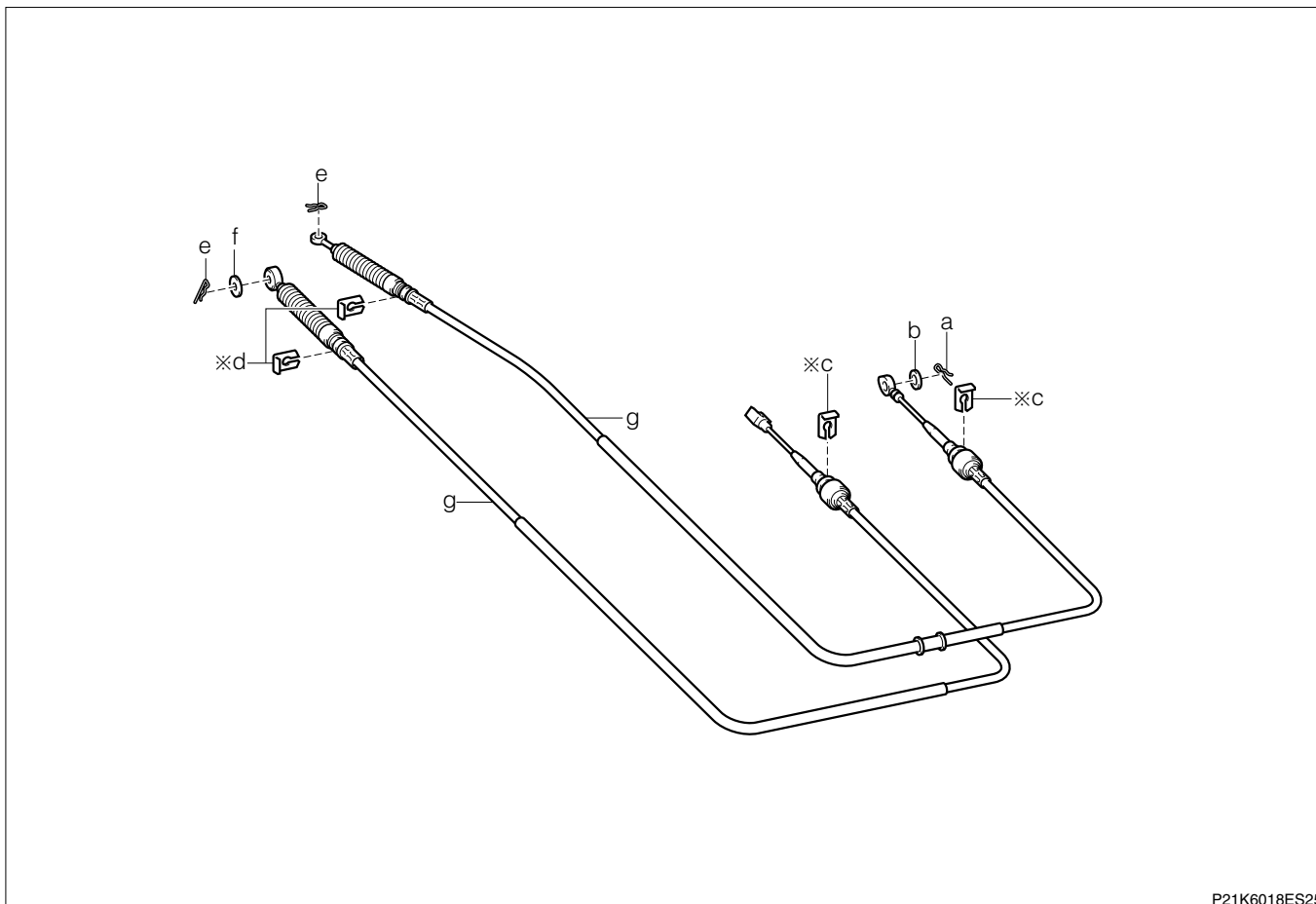
8-1 REMOVAL AND INSTALLATION

8-1-1 OPERATION BEFORE REMOVAL

1. Remove the console box Ay RR UPR.
2. Lift up the vehicle.

8-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



P21K6018ES25

※: Non-reusable parts

Unit: N·m{kgf·cm}

(2) Removal and installation procedures

- | | | | | | |
|---|---|---------------|---|---|--------------------------------|
| 1 | a | Clip | 6 | f | Washer, plate |
| 2 | b | Washer, plate | ▼ | 7 | g |
| 3 | c | Clip | | | Cable Ay, shift & select cable |
| 4 | d | Clip | | | |
| 5 | e | Clip | | | |

F2-19

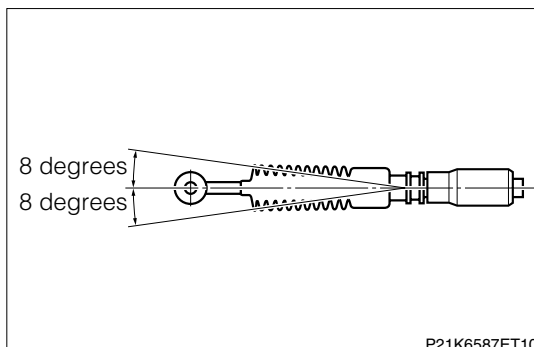
8-1-3 POINTS OF REMOVAL

(1) Cable Ay, shift & select cable

1. Disconnect the cable Ay.

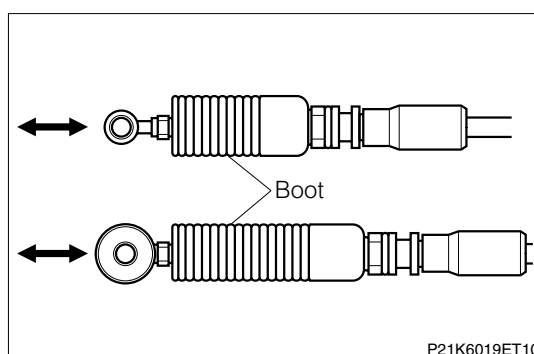
CAUTION

- Do not bend the end section of the cable Ay more than 8 degrees.



8-1-4 INSPECTION

1. Ensure that the inner cable of the cable Ay slides smoothly.
2. Check that there is no severe rupturing, damage or deformation to the boot.



8-1-5 OPERATION AFTER INSTALLATION

1. Lift down the vehicle.
2. Attach the console box Ay RR UPR.